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10/008,334	12/06/2001	Lin Xu	4208-4057	3436

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MORGAN & FINNEGAN, L.L.P.  
3 WORLD FINANCIAL CENTER  
NEW YORK, NY 10281-2101

EXAMINER

SUAZO, RAINIER A

ART UNIT PAPER NUMBER

2144

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

10/008,334

**Applicant(s)**

XU ET AL.

**Examiner**

Rainier Suazo

**Art Unit**

2144

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 06 December 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/06/2001</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

1. This application has been examined. Claims 1-28 presented for examination.

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst et al. (U.S. Patent Number 6,131,123) hereinafter referenced to as Hurst in view of Khan et al. (U.S. Patent Application Publication Number US 2002/0143951 A1)

Hurst taught an efficient message distribution to subsets of large computer networks using multicast for near nodes and unicast for far nodes. The sending computer determines the circumstances under which a combination of multicast and unicast messages are efficient by determining that many recipient computers are near the sending computer and that few recipient computers are far. See the **abstract**.

Khan taught a method and system for sending multicast information to a user comprising agents, network programs that reside on multicast-enabled computer. The agents receive multicast data packets sent to members of a multicast group and repackage the multicast information into a unicast data packet and forward the unicast data to a client registered with the agent. Clients may register with an agent by sending an IGMP join message. See the **abstract**.

Art Unit: 2144

Regarding claim 1-12,

Hurst taught a computer system that make a determining whether a subset of a reception group should receive said service via a unicast link or via a multicast link (**abstract, column 4 lines 3-12, column 5 lines 56-63**).

Hurst further taught determining the ideality (suitability) of each option (**column 7 lines 1-47 and column 8 lines 54-65**).

Hurst's disclosure is embodied in a computer system comprising a memory, a processor and program code wherein the program code stored in the memory is to be executed by the processor (**column 35-53**) for achieving the steps of the invention. Note that the above limitations depicts in a general fashion a general purpose computer architecture well known in the art at the time of the invention to be used to perform methods steps and typically called computer, server, IBM compatible PC or the like.

Hurst did not expressively disclose

- a) forwarding to a reception group; and
- b) performing determination steps based on a change in the cellular distribution, although Hurst disclosure performs determination steps for every message and therefore would inherently make a different determination upon changes in the composition of the multicast group.

Kahn taught the use of agents (**135**) that forward unicast data packet to a client registered with the agent.

Khan expressively taught techniques for “New Client Joining Multicast Group” and “Client Leaving Multicast Group” [0029-0033] effectively depicting a ways to update the multicast group membership.

Hurst and Khan taught inventions in the same field of endeavor, related to multicast and unicast data transmission to improve network resources utilization. See “FIELD OF INVENTION” in Hurst and Khan. Note that distributing a message to a subset of clients defines multicasting.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to modify the system of Hurst with the teachings of Khan. Hurst motivated the exploration of the art of multicasting and unicasting in **column 1 lines 19-46**. Khan motivated the exploration of the art of multicasting and unicasting in paragraphs **0002, 0003, 0005 and 0007**. This modification would have improved Hurst disclosure with the with the teachings of Khan providing a system that sends or forwards a multicast or a unicast message, using a forward agent. See Khan [0012]. Additionally the modification would have improved Hurst system providing means to detects changes in the composition of the multicast or unicast group before each transmission determination to multicast or unicast to certain nodes (see Khan [0033]). Therefore the modified system would provide a more effective messaging system that would avoid for example sending messages to networks where there are no active recipients.

3. Since all the limitations of claimed invention were disclosed by the combination of Hurst and Khan, claims **1-12** are rejected.

Art Unit: 2144

4. Claims 13-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hurst et al. (U.S. Patent Number 6,131,123) hereinafter referenced to as Hurst in view of Khan et al. (U.S. Patent Application Publication Number US 2002/0143951 A1) further in view of Marzo et al. (Multicast Algorithms Evaluations Using an Adaptative Routing in ATM Networks) hereinafter referenced to as Marzo and further in view of Stanforth (U.S. Patent Application Publication No. US 2002/0058502 A1) hereinafter referenced to as Stanforth.

Marzo taught multicast algorithms for routing in ATM networks. Marzo describes that for each new call the network must select a path that has sufficient bandwidth available to support the new connection. Marzo described bandwidth considerations, connection acceptance control and routing, adaptative routing with pre-evaluated tables and multicast issues as well as cost analysis. See the **abstract**.

Stanforth taught an ad-hoc, peer-to-peer radio access system for cellular communications systems and described in the background that spectral efficiency is a key factor. The fact that this information was described in the background of an application related to improving efficiency of data network transmission is evidence that the importance of such factor was well known in the art at the time of the invention. See the **abstract and the background of the invention**.

Regarding claim 13-16,

Hurst combined with Khan taught the invention substantially as claimed. However the combination of Hurst and Khan did not expressively disclose the taking into account the bandwidth and the spectrum efficiency factor of each of each access system and per-unit-cost of bandwidth.

Art Unit: 2144

Marzo, in the same filed of invention, taught taking into account the bandwidth (**page 2/7 paragraph 3**). Marzo taught the importance and use of cost measures to determine optimal routes (**page 5/7**).

Stanforth taught the importance of considering spectral efficiency as a key economic factor in wireless communications because of the limited availability and high costs of spectrum [0005].

Hurst, Khan, Marzo and Stanforth disclosed information in the same field of endeavor, related to improve scarce network resources utilization.

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to further modify the combined system of Hurst and Khan with the teachings of Marzo and Stanforth. Motivation to combine is found in Hurst and Kahn disclosures and both motivated the exploration of the art of multicasting and unicasting (see **column 1 lines 19-46 0002 in Hurst; and 0003, 0005 and 0007 in Khan**), in addition, Hurst motivated the exploration of the art of solving excessive message traffic throughout the computer network (**column 1 lines 35-46, column 2 lines 54-57 and column 8 lines 54-65**). This combination would have improved the combination of Hurst and Khan, in order to provide a system that more accurately determines optimal transmission routes by taking into account bandwidth costs and spectral spectrum efficiency (see **page 5/7 in Marzo and [0005] in Stanforth**).

Regarding claims **17 and 18**, Hurst taught considering the percentage of terminals using the link that would be served using the bandwidth (**fig. 3, column 4 lines 5-12, column 5 lines 54-63 and column 6 lines 1-10**). One of ordinary skill in the art would understand that the term 'few' needs to be expressed in the form of mathematical calculations in order to be interpreted by

Art Unit: 2144

a processor executing a computer executable readable medium and using average or percentage calculation is a matter of choice in order to provide a simple measure representing what is few or more. Mathematical calculations are inherent in the determination of 'few'.

Regarding claims 19-28, Khan taught the use of IGMP join message [0027-0030], which by definition includes: a) group address (networks available), b) a designated router or a way to determine a designated router; and c) the multicast address that identifies a particular transmission session, (session by definition have a start time and an ending time).

5. Since all the limitations of claimed invention were disclosed by the combination of Hurst and Khan, claims 13-28 are rejected.

### ***Conclusion***

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Miller et al. (U.S. Patent No. **6,453,438 B1**) taught a multicast transmission system that retransmits a message based on changing conditions of the reception group. See **column 10 lines 20-65**.

Bhagavath et al. (U.S. Patent No. **6,163,810**) taught a networked system the combines unicast hosts and unicast sessions and messages transmission. See the **abstract, fig. 5 and column 5**.

Buskens et al. (U.S. Patent No. **5,905,871**) taught a multicasting method for transmitting unicast and multicast messages based changing conditions of the multicast group such as a joining event with an unknown receiver. See the **abstract and figs. 2-6 and 11**.



Art Unit: 2144


Jansen et al. (U.S. Patent No. **6,243,450 B1**) taught considerations of cost per unit time embodied in an apparatus for vending public multimedia.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rainier Suazo whose telephone number is (571) 272-3931. The examiner can normally be reached on Monday through Friday, 8:00-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Cuchlinski can be reached on (571) 272-3925. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Rainier Suazo, MBA  
Patent Examiner  
Art Unit 2144

  
WILLIAM A. CUCHLINSKI, JR.  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2400